



US009510717B2

(12) **United States Patent**
Ko

(10) **Patent No.:** **US 9,510,717 B2**
(45) **Date of Patent:** **Dec. 6, 2016**

(54) **SELF-MOVING DUST SUCTION APPARATUS
TO FACALITATE CLEANING**

(71) Applicant: **Joseph Y. Ko**, Laguna Niguel, CA (US)

(72) Inventor: **Joseph Y. Ko**, Laguna Niguel, CA (US)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 326 days.

(21) Appl. No.: **14/182,999**

(22) Filed: **Feb. 18, 2014**

(65) **Prior Publication Data**

US 2015/0230678 A1 Aug. 20, 2015

(51) **Int. Cl.**

A47L 9/14 (2006.01)

A47L 9/10 (2006.01)

(52) **U.S. Cl.**

CPC **A47L 9/106** (2013.01); **A47L 2201/00**
(2013.01)

(58) **Field of Classification Search**

CPC **A47L 9/1481**; **A47L 9/106**; **A47L 2201/00**;
A47L 9/1691

USPC **15/340.1**

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2005/0217061 A1* 10/2005 Reindle G05D 1/0227
15/319
2012/0169497 A1* 7/2012 Schnittman A47L 9/106
340/540
2012/0199006 A1* 8/2012 Swett A47L 9/106
96/417

2013/0117952 A1* 5/2013 Schnittman A47L 11/34
15/52.1

2014/0026338 A1* 1/2014 Kim A47L 11/4041
15/49.1

2014/0137367 A1* 5/2014 Li A47L 11/4058
15/383

2014/0189977 A1* 7/2014 Wang A47L 9/009
15/347

FOREIGN PATENT DOCUMENTS

TW M407724 U 7/2011

TW M422395 U 2/2012

* cited by examiner

Primary Examiner — Joseph J Hail

Assistant Examiner — Henry Hong

(74) *Attorney, Agent, or Firm* — Muncy, Geissler, Olds &
Lowe, P.C.

(57) **ABSTRACT**

A self-moving dust suction apparatus to facilitate cleaning comprises a dust suction base, a detachable dust collection unit and an airflow directing element. The dust suction base includes an air drawing mechanism to draw airflow, a housing space corresponding to the air drawing mechanism, an opening communicating with the housing space and a trigger driven mechanism. The detachable dust collection unit is held in the housing space through the opening and includes a dust suction inlet corresponding to the air drawing mechanism. The airflow directing element is disposed on the detachable dust collection unit and includes an elastic barrier plate which partially surrounds the dust suction inlet and extends towards a floor from the detachable dust collection unit to confine direction of the airflow flowing into the dust suction inlet.

9 Claims, 6 Drawing Sheets

